AMSAT News Service Weekly Bulletins
Issue: ANS-036
Date: 2012-02-05
Sources: amsat-ans-2012-ans-036-weekly.txt

AMSAT NEWS SERVICE
ANS-036

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:

ans-editor@amsat.org

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ANS-036 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 036.01
  From AMSAT HQ SILVER SPRING, MD.
February 5, 2012
To All RADIO AMATEURS
BID: $ANS-036.01

Vega Launch on February 13 With Eight Amateur Band Cubesats

Vega is scheduled to launch on Monday, February 13, at 1000 UTC with eight student built amateur radio satellites. The launcher will first deploy the main payload, the LARES the Laser relativity Spacecraft and will then make an additional firing of the final OVUM stage before deploying the secondary cubesat payloads.

The planned timing for these deployments are as follows:

= T0+ 4245.30secs first PPOD, with (in order of ejection) XatCobeo, e-st@r, and Goliat
= T0+ 4255.30secs second PPOD, with (in order of ejection) Robusta, MaSat-1 and PW-Sat
= T0+ 4265.30secs third PPOD, with UniCubeSat only
  (These Cubesats will not deploy their antennas until >1800 seconds after they leave their PODS.)

= T0+ 4275.30secs AlmaSat-1 - it is not known how soon this space-craft will start transmitting after deployment

Frequencies for the satellites on the Vega Launch are:

+ ALMASat-1 - University of Bologna, Italy 437.465 MHz 1200 bps FSK

and 2407.850 MHz

+ Xatcobeo (a collaboration of the University of Vigo and INTA, Spain) to demonstrate software-defined radio and solar panel deployment. 437.365 MHz FFSK with AX.25 and 145.940 MHz SSR

+ Robusta (University of Montpellier 2, France) to test and evaluate radiation effects (low dose rate) on bipolar transistor electronic components. 437.325 MHz 1200 bps FM telemetry with one data burst of 20 seconds every 3 minutes.

+ e-st@r (Politecnico di Torino, Italy) to demonstration of an active 3-axis Attitude Determination and Control system including an inertial measurement unit. 437.445 MHz 1200 bps AFSK.

+ Goliat (University of Bucharest, Romania) to provide imaging of the Earth surface using a digital camera and in-situ measurement of radiation dose and micrometeoroid flux. 437.485 MHz 1200 bps AFSK.

+ PW-Sat (Warsaw University of Technology, Poland) to test a deployable atmospheric drag augmentation device for de-orbiting CubeSats. PW-Sat carries an FM to DSB amateur radio transponder with an FM input on 435.020 MHz and DSB output on 145.900 MHz. There are 5 modes of operation:
  - Receive only - no downlink
  - CW Beacon CW - On-Off Keying (OOK) CW 12 WPM 435.020 MHz
  - BPSK Beacon - BPSK 1200 bps AX25 (1 frame on 20 sec) 435.020 MHz
  - Control communication mode. Downlink BPSK 1200 bps AX25 435.020 MHz
  - Voice Repeater mode (aka "AO-16 mode) - uplink 435.020 MHz FM and downlink 145.900 MHz DSB

+ MaSat-1 (Budapest University of Technology and Economics): to demonstrate various spacecraft avionics, including a power conditioning system, transceiver and on-board data handling. 437.345 MHz GFSK 625/1250 bps, CW. See the related article in these bulletins describing the downloadable GFSK demodulator software.

+ UniCubeSat GG - (University of Rome): The UNICubeSat mission goal is the in situ measurement of atmospheric density. Downlink frequencies are 437.305 MHz or 437.345 MHz 9k6 FSK.

Mineo Wakita, JE9PEL provides complete coverage of the Vega launch on his 'ESA CubeSats Update' web pages. You'll find an overview of each of the satellite missions, frequencies, modulation/protocols, and links to the developers home web pages posted at:
http://www.ne.jp/asahi/hamradio/je9pel/esa9cubf.htm

AMSAT-UK covers the Vega launch at:
http://www.uk.amsat.org/4180

An ESA time-lapse showing the full assembly of the first Vega launcher at the launch pad at the ESA Spaceport in Kourou is posted at:
http://www.youtube.com/watch?feature=player_embedded&v=YaUMSLU0aig

The university cubesat teams have requested reception reports. All observers are being encouraged to join the CubeSat IRC chat channel to pass on their news and comments in realtime. You will need an IRC client such as ChatZilla or mIRC to join the cubesat chat. Use the irc.freenode.net server. Then join the #cubesat channel. Many users set their chat nickname to "name_callsign".

[ANS thanks the cubesat teams, Mineo Wakita, JE9PEL, and AMSAT-UK for the above information]

SKN On OSCAR 2012 Best Fist Winners

Many thanks to all who participated in AMSAT's Straight Key Night on OSCAR 2012, held in memory of Don Brown, W1JSM. Activity was down this year, owing largely to there being only two satellites available for use: AMSAT-OSCAR 7 -- which remained in Mode A throughout the event -- and VUSAT-OSCAR 52.

Eight participants each received at least one Best Fist nomination: AA5PK, N4ZQ, N6EV, WA6ARA, WB2SIH, WB4LHD, WB8TGY, and WC7V.

Congratulations to 2012's Best Fist winners, and we'll see you in 2013!

[ANS thanks Ray Soifer, W2RS for the above information]

Remembering Mr. Smith - SuitSat-1 February 3, 2006

February 3 marks the sixth anniversary of the first ARISS satellite, SuitSat-1, which captured the imagination of students, radio amateurs, and people all around the world.

During a scheduled EVA outside the International Space Station, Valery Tokarev and Bill McArthur, KC5ACR deployed a retired Russian Orlan spacesuit with a radio transmitter and battery stuffed inside and antenna mounted on its helmet. The deployment took place just after 23:05 UTC on February 3, 2006. Transmissions were soon heard on 145.990 MHz.

SuitSat-1, also known as Mr. Smith, Ivan Ivanovich, RadioSkaf, Radio Sputnik and AMSAT-OSCAR 54, was an idea proposed by the ARISS-Russia team as a commemorative gesture celebrating the 175th anniversary of the Moscow State Technical University.

SuitSat-1 was programmed to continuously transmit recorded voice messages in several languages from students around the world. The signal began transmission approximately 15 minutes after SuitSat-1 was jettisoned. The downlink signal was noted to be weaker than expected, possibly due to a mechanical problem with the antenna.

SuitSat-1 re-entered the Earth's atmosphere on September 7, 2006, at 16:00 UTC about 1400 km south-southwest of Western Australia.

SuitSat-2 was planned following the public relations success of the first suit. Originally, it was to have solar cells strapped to the outside of the suit to provide charge for internal batteries and extend its life during orbit. When the Orlan suit planned to be used for this mission was no longer available, SuitSat-2 was redesigned into a satellite built into a deployable spaceframe with the solar cells and cameras for Slow Scan Television (SSTV) mounted on the outside of the box. The spacecraft was named ARISSat-1/KEDR which recently completed its successful mission.

[ANS thanks the ARISS and AMSAT archives for the above information]

New Version HamSatDroid App is Available

Dave Johnson, G4DPZ announced a new version of the free HamSatDroid app now available on the Android Market.

Upates to the app include:

+ tracking algorithm uses Dave's SGP4 implementation, as GENSO.
+ plot three orbits ahead on the map
+ plot the footprint
+ take keps from Celestrak

Dave says, "Thanks to the feedback we've had from the existing users, I've got quite a few more changes in development. Opinions are sought about making a small charge and paying the income into satellite building funds and supporting a server which might be introduced to improve functionality of the app."

See the HamSatDroid web page at:
https://sites.google.com/site/hamsatdroid/

Dave is the FUNcube Data Warehouse Developer and is also an AMSAT-NA Life Member and AMSAT-UK Committee Member.

[ANS thanks Dave Johnson, G4DPZ for the above information]

Budapest University Masat-1 Telemetry Decoder Software Released

Dr. Bandi Gschwindt HA5WH, Project Director of the Masat-1 CubeSat, the first Hungarian satellite, built in Hungary by students at the Budapest University of Technology and Economics, reports that their satellite is expected to be launched on the Vega maiden flight on February 9 with a planned deployment window between 10:00-13:00 UTC.

Masat-1's website is at: http://cubesat.bme.hu/?lang=en

The students are looking for hams to help with the reception of telemetry data on 437.345 MHz at 625/1250 bps baud rate GFSK, especially in the first two weeks after launch. The satellite's callsign is HA5MASAT.

The Masat-1 amateur radio webpage is at:
http://cubesat.bme.hu/radioamatoroknek/?lang=en
You can register on that page.

The Masat-1 Ground Station Client Software was prepared to process the 437.345 MHz GFSK 625/1250 bps transmission received from the satellite. The software provides the following functions:

+ Audio demodulation
+ Packet decoding
+ Packet data visualization
+ Frequency waterfall plot to aid radio tuning

Download the software and a test WAV file from:
http://cubesat.bme.hu/en/foldi-allomas/kliens-szoftver/

Planned orbit will be 300x1500 km, inclination 70deg. Launch will
be by ESA from Kourou. A video showing Masat-1's elliptical orbit
is posted online at: http://www.uk.amsat.org/4119

[ANS thanks Dr. Bandi Gschwindt, HA5WH and Perry Klein, W3PK for
  the above information]

February Arizona Centennial Special Event Plans Satellite Operation

The Central Arizona DX Association (CADXA) is very pleased to
announce their special event operation in celebration of the
Arizona Centennial during the week of February 13-19th, 2012.

K7UGA Satellite Operation

Using the callsign of the late Senior Senator, Barry M. Goldwater,
K7UGA, CADXA members will be operating from stations located
throughout Arizona during that week. Special operating locations
from Tucson, Prescott and Phoenix will be on the air celebrating
the 100th anniversary on Tuesday, February 14, 2012. They will be
on all amateur bands (160-2 meters) and will be using CW, SSB,
RTTY, PSK31 and Satellite modes.

Arizona's AMSAT Field Ops coordinator Patrick Stoddard, WD9EWK/VA7EWK
announced satellite operations using the K7UGA callsign:

+ Watch for announcements on amsat-bb for the specific passes WD9EWK
   plans to operate using the K7UGA callsign on February 14.

+ Patrick plans to use the K7UGA call sign for his on-air satellite
   demonstrations from the Yuma, Arizona Hamfest on February 17-18,
   2012. More information about this is on AMSAT's online calendar
   of events:
   http://www.amsat.org/amsat-new/fieldops/eventDetail.php?eID=629

+ Also refer to http://www.qrz.com/db/k7uga for additional info.

All K7UGA QSL requests go to Bob Davies - K7BHM (qrz.com) with an
SASE. Additional information is posted on the CADXA Web site at:
http://www.cadxa.org

Thunderbird Amateur Radio Club W7A Satellite Operation

Rick Tejera, K7TEJ says the Thunderbird Amateur Radio Club will be
operating a special event station for the Arizona Centennial as well
the weekend of Feb 11-12, 2012. Rick plans to operating on as many
FM satellite passes as possible during the event using the W7A call.

[ANS thanks Patrick Stoddard, WD9EWK/VA7EWK and Rick Tejera, K7TEJ
  for the above information]

Can It Already Be That Time of Year For Field Day Planning?

AMSAT Director Contests and Awards, Bruce Paige, KK5DO reminds you
that time of year is once again approaching - Field Day!

Each year the American Radio Relay League (ARRL) sponsors Field Day as an emergency preparedness exercise. The event takes place during a 24-hour period on the fourth weekend of June. For 2012 the event takes place during a 27-hour period between 1800 UTC on Saturday, June 23, 2012 and 2100 UTC on Sunday June 24, 2012. Those who set up prior to 1800 UTC on June 23 can operate only 24 hours.

The Radio Amateur Satellite Corporation (AMSAT) promotes its own version of Field Day for operation via the amateur satellites, held concurrently with the ARRL event.

With the loss of AO-51 and SO-67 field day this year is going to be most challenging. If you are considering ONLY the FM voice satellites like AMRAD-OSCAR-27 or SaudiSat-Oscar-50 for your primary AMSAT Field Day focus: Don't, unless you are simply hoping to make one contact for the ARRL rules bonus points.

The congestion on FM LEO satellites was so intense in prior years that we must continue to limit their use to one-QSO-per-FM-satellite. This includes the International Space Station. You will be allowed one QSO if the ISS is operating Voice. You will also be allowed one digital QSO with the ISS or any other digital, non-store-and-forward, packet satellite (if operational).

If you have worked the satellites on Field Day in recent years, you may have noticed a lot of good contacts can be made on some of the less-populated, low-earth-orbit satellites like VUSat OSCAR-52,Fuji-OSCAR 29 (may or may not be
operational), AMSAT-OSCAR 7. During Field Day the transponders come alive like
20 meters on a weekend. The good news is that the transponders on these satellites will support multiple simultaneous contacts. The bad news is that you
can't use FM, just low dutycycle modes like SSB and CW.

The AMSAT Field Day 2012 event is open to all Amateur Radio operators. Amateurs are to use the exchange as specified in ARRL rules for Field Day. The AMSAT competition is to encourage the use of all amateur satellites, both analog and digital.

For the complete listing of the AMSAT Field Day Rules please refer to the documents posted on-line at:
http://www.amsatnet.com/fd2012.doc
http://www.amsatnet.com/fd2012.pdf

[ANS thanks AMSAT Director Contests and Awards, Bruce Paige, KK5DO
for the above information]

NASA Extends Deadline for Student Summer Internships

College Level Internships Deadline Extended

NASA says they will continue accepting applications for college level summer internship positions among several NASA Centers around the country until March 16, 2012.

Students can view opportunities and apply for them all in one place. To start, the prospective student should go to:
http://intern.nasa.gov/ then Student Opportunities tab then select

Internships which will bring you to the OSSI:SOLAR page describing the program.

Using the Search Tab on the OSSI:SOLAR page selecting Goddard in Maryland, Internship, Summer 2012, Engineering - Electrical Eng., or Engineering - Computer Eng., and a keyword search using "PICetSat" reveals an opportunity titled "PICetSat Module Development." which will develop a high-altitude balloon experiment module and related ground station components. This internship is open for Junior, Senior, and Masters level students. A description of this particular internship opportunity can be found at:
http://simsat.net/Internship-PICetSatModuleDevelopment-PKilroy.pdf
as sponsored by Pat Kilroy, N8PK, an AMSAT member and engineer at NASA in Greenbelt, Maryland.

High School Level Internships Applications Now Open

On February 1, NASA opened the application process for high school students to apply for a summer internship. The application page is at: https://education.gsfc.nasa-telophase.com/ The deadline for high school student applications is March 2, 2012.

Click on "Browse Available Projects" for students in the greater Maryland/DC/Northern Virginia area. An opportunity exists for a high school student/intern to also participate on the SimSat high-altitude balloon experiment sponsored by Pat Kilroy, N8PK. The direct link for this internship is:
http://tinyurl.com/NASA-PICetSat-Internship

The application process must be completed at the NASA intern web site. Students do not specify a specific internship program when they submit an application. The NASA Education community will determine which internship programs you are eligible for according to the information you provide in your application.

[ANS thanks NASA for the above information]

Successful ARISS Contact with El Dorado County Students

On Tuesday, January 24, on-orbit astronaut Dan Burbank, KC5ZSX participated in an ARISS contact with students from El Dorado County in Placerville, California.

The students, who came from several schools within the county, were able to get answers to many of their questions about space. Approximately 250 people were in attendance and another 160 watched as the contact was streamed over the internet. The radio connection was provided by telebridge station W6SRJ in California. The station, located on the campus of Santa Rosa Junior College (SRJC), hosted another 15 observers. In addition, the college sent a reporter and photographer from its newspaper, The Oak Leaf, to cover the event. The ARISS contact was part of a comprehensive education plan used to pique students' interest in Science, Technology, Engineering and Mathematics (STEM). More on the event, including video and photos may be found on the El Dorado County Web site.
See: http://general.edcoe.org/nasaqa/default.html

[ANS thanks Carol, KB3LKI, for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

73,
This week's ANS Editor,
Lee McLamb, KU4OS